

TRANSMITTAL OF APPEAL BRIEF (Large Entity)Docket No.
GRLK-P121-USIn Re Application Of: **Carlo Neri**

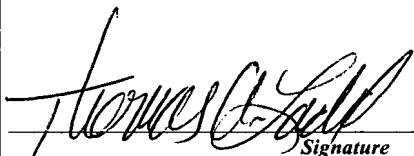
Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/692,025	October 19, 2000	Joseph David Anthony	27268	1714	5441

Invention: **MIXTURES OF ADDITIVIES FOR ORGANIC POLYMERS IN GRANULAR FORM****COMMISSIONER FOR PATENTS:**

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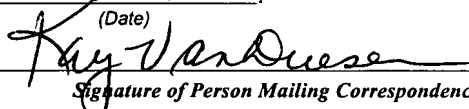
Thomas A. Ladd, Reg. No. 32,543
Baker & Daniels LLP
300 North Meridian Street, Suite 2700
Indianapolis, IN 46204
Tel.: 317-237-0300
Fax: 317-237-1000

Dated: **May 18, 2007**

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May 18, 2007

(Date)


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CC:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/692,025 Confirmation No. 5441
Applicant : Carlo Neri
Filed : October 19, 2000
TC/A.U. : 1714
Examiner : JOSEPH DAVID ANTHONY
TITLE : MIXTURES OF ADDITIVES
FOR ORGANIC POLYMERS IN
GRANULAR FORM
Docket No. : GRLK-P121-US
Customer No. : 27268
Appeal No. : 2007-0101

REHEARING BRIEF

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(37 C.F.R. § 1.8(a))

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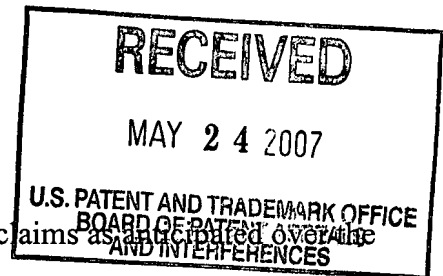
May 18, 2007

By: 

Kay VanDuesen

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
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The Decision of this Board affirmed a rejection of pending claims as anticipated over the references US 5,888,254; 4,729,796; and 5,437,688 by a decision dated March 22, 2007.

Applicant traverses the continuing rejection of claims as anticipated pursuant to 35 USC §102(b) and requests rehearing concerning the said rejections.

I. US 5,888,254 as an anticipating reference.

A. Dried Solids of a Solution does not Include a Claimed "Gluing Agent".

The '254 reference discloses a solution made from components of the claims concentrated to dryness. Example 1. As a dried solution, the resulting solid will be substantially homogeneous.

The Board decision of March 22, 2007 cited *In re Thorpe*, 777 F.2d 695, 697, (Fed.Cir., 1985) in support of the doctrine that the patentability of a product does not depend on the manner

in which it is made. However, quoted language in the decision of the Board appears to have been overlooked.

"If the product in a product-by-process claim **is the same as**¹
a product of the prior art, the claim is unpatentable even though the
prior product was made by a different process.

The claimed mixture of additives is not "**the same as**" the '254 reference. The claimed mixture is formed by a melt of all or a part of the lowest melting component, which, upon solidifying acts as a gluing agent for the remaining components. It is therefore apparent that the remaining components remain in the physical state as when added to the mixture. Furthermore, a granule formed would disclose regions of higher melting component(s) in a matrix formed by the lowest melting component 'glued' to discrete non-melted component(s), thereby forming a non-homogeneous granule. It is not sufficient to show that prior to processing a product of the prior art may have been made from the same ingredients, or that it is the same state of matter (solid, liquid or gas). An anticipating reference must disclose a product that "is the same as" the claimed invention.

No part of the '254 reference has been identified that discloses a "gluing agent". Neither the examiner nor this Board identifies the lowest melting component of the product of the applied Example 8 of '254, or any evidence that the lowest melting component, what ever that may be, serves as a gluing agent for the remaining components of Example . It is not taught, nor argued, that any component of the product of the '254 reference melts at the disclosed process

¹ The *Thorpe* sentence includes at this point "or obvious from". This phrase is omitted because the basis of the rejection is anticipation, not obviousness.

temperature: 120°C. Since the solid form of the '254 reference, and the claimed invention are physically different, the '254 reference cannot disclose a product that **"is the same as"** the claimed granule. For the stated reasons, the '254 reference does not anticipate the claims 1 – 6, 8 – 21.

II. US 4,729,796 as an anticipating reference.

A. New Basis for Rejection – Sodium Hydroxide as stabilizer

This Board supports the anticipation rejection by identification of a new basis not identified by the Examiner, (37 CFR 41.50(b)) to wit: that the '796 reference discloses sodium hydroxide as a stabilizer.

The relied-upon Example 1 discloses a colophony solution containing sodium hydroxide that is incorporated with a pigment, then dried, to form a free-flowing granular material. In a step preceding drying the solid ingredients to form the free-flowing granular material, the solution is acidified by HCl to a pH of 4. At such pH, no sodium hydroxide is present. The combination of sodium hydroxide and hydrochloric acid at pH 4 forms sodium chloride. The absence of sodium hydroxide in the product of the '796 reference perhaps explains why the Examiner did not assert the presence of sodium hydroxide as a stabilizer.

Repeating for emphasis: in the dried, free-flowing, granular material of the '796 reference, sodium hydroxide is not present. Therefore the factual basis for the asserted anticipation does not exist.

B. Homogeneous Precipitate vs Discrete Mixture Component(s)

Furthermore, for the same reasons discussed above concerning the '254 reference, as a solid precipitated from a solution, the solid of the '796 reference is substantially homogeneous in

contrast to discrete non-melted components 'glued' in a matrix formed of the lowest melting component according to the claimed mixture. Relating the distinguishing feature to the *Thorpe* test, the '796 reference cannot disclose a product that **"is the same as"** the claimed granule.

C. Absence of "Gluing Agent"

The Board decision indicates that the Board did not address the fact that the '796 reference did not disclose a gluing agent that is "a stabilizer, a pigment, a dye, or a bleaching agent" as claimed. The failure to address the gluing agent claim element may result from the construction given the claims by the Board which failed to include the 'gluing' claim element. Board Opinion, p. 5.

Alternatively, the Board failed to recognize the significance of Applicant's argument that "a gluing agent is not identified that is a stabilizer, a pigment, a dye, or a bleaching agent according to Applicant's claims". Reply Brief, p. 15-16. The claims call for the molten part of the lowest melting component of: stabilizers plus pigments, and/or dyes or bleaching agents to "act as a gluing agent". It is immaterial that '796 discloses "granular pigment compositions comprising an antioxidant and sodium hydroxide" if neither component meets the claim limitation of a gluing agent. It has not been established that either component of the '796 reference "act[s] as a gluing agent". For this additional reason the '796 reference does not anticipate claims 1 – 6, 8 – 21.

D. New Ground of Rejection - "Carrier" as a defined term.

The Board decision notes as an objection that Applicant's "Specification does not define the term "carrier." " Board Opinion, p. 11. This statement suggests that the lack of definition of

"carrier" in some way renders the specification defective to the prejudice of the applicant. It may not.

Claims must be construed 'as one skilled in the art'. *In re Cortright* 165 F.3d 1353, 1358 (Fed.Cir., 1999); *Scripps Clinic & Research Foundation v Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed.Cir., 1991). Applicants are afforded license by *Autogiro Company of America v United States* 384 F.2d 391, 397, 155 USPQ 697, 702 (Ct.Cl., 1967) to define terms. Failing to define terms leaves the terms as having their customary meaning in the art.

The Patent and Trademark Office places the burden on the Examiner to apply the plain meaning of words in the claims of applications. See "MPEP 2111.01 Plain Meaning. THE WORDS OF A CLAIM MUST BE GIVEN THEIR "PLAIN MEANING" UNLESS THEY ARE DEFINED IN THE SPECIFICATION." Since the burden is placed on Examiners to give words of a claim their 'plain meaning' unless otherwise defined, it follows that this Board must do likewise. Thus, Applicant may not suffer prejudice, but may enjoy from this Board the 'plain meaning' of the term "carrier" in the claims under consideration.

Attached hereto is a definition of 'carrier' as that term is used in the art.² Applied to the '796 reference, colophony meets the definition provided as a substance present in an appreciable amount that carries a trace of a specified substance with it through a process. The antioxidant, pentaerythrityl-tetrakis-[3-(3,5-ditertbutyl-4-hydroxy-phenyl)propionate] present in the suspension at 1 part per hundred, is apparently carried through the process by the colophony present at 52 parts per hundred.

For the additional reason that carriers are excluded from the claim, the '796 reference does not anticipate the claims 1 – 6, 8 – 21.

III. US Patent 5,437,688 as an anticipating reference.

A. Homogeneous Precipitate does not Anticipate Mixture having Discrete Component(s).

² *Compendium of Chemical Terminology*, Blackwell Scientific Publications, Oxford, 1987. "Carrier a substance in appreciable amount which, when associated with a trace of a specified substance, will carry the trace with it through a chemical or physical process."

Applicant is not unaware that the Board has previously applied 37 CFR § 41.41(a)(2) as a basis to disregard support provided for the first time to the Board. In this rehearing request the Board may reach the same result by basing its decision on 37 CFR § 41.52(a)(1).

If the Board asserts that the Board may by adoption of a rule restrict the Applicant's freedom to fully respond to a new argument, then applicant submits that the Board's rule 37 CFR § 41.52(a)(1), as so applied, is constitutionally infirm. "When government agencies adjudicate or make binding determinations which directly affect the legal rights of individuals, it is imperative that those agencies use procedures which have traditionally been associated with the judicial process." *Hanna v. Larche*, 363 U.S. 420, 442 (1960).

Applicants submit that at a minimum, 'procedures traditionally associated with the judicial process' includes a right to fully respond to the argument raised by the Board decision. Claim construction is a question of law. *Cybor Corp. v FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed.Cir., 1998) (*en banc*). "Evidence" as to the meaning of a term of a claim, such as in this matter 'carrier', is as appropriate to bring to the attention of this Board as is any rule, statute, or controlling decision on a question of law. Any hint or suggestion that a patent applicant may not respond including reference to a supporting textbook source, by adoption of a rule or procedure, denies due process to the patent applicant.

It is urged that '688, and specifically Example 1 thereof anticipates claims 1 – 6, 8 – 21. Example 1, (and Examples 2 – 7, 10 – 22) disclose 'an aqueous dye solution'. Included in the aqueous dye solution is sodium sulfate and sodium primary phosphate.

Applicant's claims are directed to "A mixture of additives To assist in distinguishing a solution from a mixture, definitions of each are attached from *Webster's New Collegiate Dictionary*. Significant for this discussion is the fact that the solid preparations of the '688 references result from uniformly dispersed ingredients of solutions in contrast to the discrete components of the mixture of Applicant's claims. As explained above, the claims call for the molten part of the lowest melting component of: stabilizers plus pigments, and/or dyes or bleaching agents to "act as a gluing agent". Thus, components of the mixture having melting points greater than the lowest melting component retain their discrete character. In contrast, solids precipitated from the solution of '688 can expect uniform distribution of components.

B. The Precipitated Solution does not Include a Claimed "Gluing Agent".

Moreover, the '688 reference contains no disclosure, so far as Applicant can determine, of a gluing agent as called for by the claims. It is not taught, nor argued, that any component of the product of the '688 reference melts at the undisclosed temperature of the spray drying step.

IV. Generalized Arguments of the Board Decision.

The Board Decision adds generalized arguments not related to specific references.

A. The False Premise of "Liquified" components

The opinion of this Board would equate liquids of the cited prior art with the melt of only the lowest melting component of the claims. The Board said:

"[I]n addition to having the same ingredients in physical form, the prior art **products** and the claimed products are both made by creating liquefied mixtures of the claimed **ingredients**, and then processing those ingredients into a solidified granular form."

Board Opinion, p. 13 (emphasis supplied)

This statement of the Board is not supported. The Board states that the ingredients of the claims are "liquified". (The applied reference, '688, describes its 'liquification' as "a solution".) The claims call for "the partial or total melting of the lowest-melting of said components". Thus, the statement by this Board that the components of the claims are "liquified" is false. The claims call for 'liquifaction' of all or part of "the lowest-melting of said components". Other component(s) of the claims remain un-"liquified".

Since the premise on which the Board's conclusion that the claims are anticipated by the '688 reference fails, the conclusion likewise is erroneous, and must be withdrawn.

B. Solid Granules Does Not Equate to "the Same Product".

A further fallacy of the statement quoted above concerns the physical state of matter of the granules. While the resulting granules have the same "physical form", i.e., granular solid, that is not sufficient to meet the test of *In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir., 1985), that the products made by two processes be "the same". A substantially homogeneous distribution of components precipitated from solution, is not "the same as" the discrete components of Applicant's claims glued by the lowest melting component of the mixture. For this reason as well, the conclusion of anticipation must fail.

C. Spatial Relationship of Dried Solids of Aqueous Solutions vs the Claimed Melt of the Lowest Melting Ingredient.

The Board concluded that granular products prepared from aqueous solutions would have "the same spatial relationship" as the claimed melt of the lowest melting ingredient. Opinion, p.

13. Applicant rejects this conclusion as illogical, irrelevant, and unsupported.

1. "The Same Spatial Relationship" Finding is Not Supported

First this conclusion finds no support in the factual record: the references.

2. Board Fact Findings Must be Supported on the Record.

Ex parte appeals, like contested matters, are considered by the Federal Circuit "on the record". 35 USC 144. In the context of a contested case, the Federal Circuit held on May 14, 2007³ that the Board may not base factual findings on its own expertise rather than evidence in the record. Applicant submits that when afforded the opportunity in a case, such as the instant matter that presents the issue, that the Federal Circuit will reach the same result, to wit: factual findings of this Board must be supported by the record in *ex parte* matters.

3. Undefined Terms.

So far as applicant can determine, "the same spatial relationship" is not a term of art related to the claimed invention. Moreover, the Board left the term undefined.

4. Spatial Relationship is not Conclusive.

Even if "the same spatial relationship" did exist between the cited references, and invention as claimed, that does not render the claims anticipated by the prior art. "Spatial

³ *Brand v Miller* #2006-1419, Fed. Cir., decided May 14, 2007.

relationship" is not a single property that renders the claimed mixture "the same as" the products of the references. "Spatial relationship" is not a feature recited in the claims.

5. "Spatial Relationship" is a Red Herring.


The spatial relationship of the components, if such were a defined term having relevance to the claimed invention, is at most one feature. Anticipation requires that a single prior art reference disclose each limitation of the claim. *Minnesota Mining & Mfg. Co. v Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565, 24 USPQ2d 1321, 1326 (Fed.Cir., 1992). The standard necessary in the instant case requires that the Patent Office establish that the claimed mixture "is the same as" the product of the '254 reference.

For the reasons stated, the '688 reference does not anticipate the claims 1 – 6, 8 – 21.

Relief Requested

Applicant seeks by this Rehearing:

- 1) withdrawal of all anticipation rejections pursuant to 35 USC §102(b) over all references of record;
- 2) appropriate extension of the patent term from the ordinary term of 20 years from filing date 35 USC §154(a)(20, resulting for the delay caused by this appeal. 35 USC §154(b)(1)(C)(iii),
- 3) affirmance of the claims according to the attached and the Amended Claims Appendix submitted with Applicant's Reply Brief.



Thomas A. Ladd
Reg. No. 32,543
Attorney for Applicant
BAKER & DANIELS
300 North Meridian Street
Suite 2700
Indianapolis, IN 46204
Telephone: (317) 237-1066
Fax: (317) 237-1000

Claims Appendix

1. A mixture of additives for organic polymers in granular form comprising:
 - one or more stabilizers for organic polymers; plus
 - one or more organic or inorganic pigments; and/or
 - one or more dyes or bleaching agents;obtained by extrusion at a temperature capable of enabling the partial or total melting of the lowest-melting of said components, the molten part of which, on solidifying, act as gluing agent for the remaining components,

said inorganic pigments being selected from the group consisting of iron oxides, carbon black, talc, China clay, barites, silicates, and sulfosilicates;

said mixture being devoid of said organic polymers and carriers for said components.
2. The mixture of additives in granular form according to claim 1, wherein the stabilizers for organic polymers are selected from the group consisting of: antioxidants, ultraviolet-ray and light stabilizers, metal-deactivators, phosphites and phosphonites, hydroxylamines, nitrons, thiosynergizing agents, agents capable of destroying peroxides, polyamide stabilizers, basic co-stabilizers, nucleating agents, fillers and reinforcing agents, benzofuranones and indolinones.
3. The mixture of additives in granular form according to claim 2, wherein the antioxidants are selected from the group consisting of alkylated monophenols, alkylthiomethylphenols, hydroquinones and alkylated hydroquinones, tocopherols, hydroxylated thiodiphenyl ethers,

alkylidenebisphenols, benzyl compounds containing O, N or S, hydroxybenzylated malonates, aromatic hydroxybenzyl compounds, triazine compounds, benzylphosphonates, acylaminophenols, esters of β -(3,5-di-t-butyl-4-hydroxyphenyl)propionic acid with monohydric or polyhydric alcohols, esters of β -(5-di-t-butyl-4-hydroxyphenyl)propionic acid with monohydric or polyhydric alcohols, esters of β -(3,5-dicyclohexyl-4-hydroxyphenyl) propionic acid with monohydric or polyhydric alcohols, esters of 3,5-di-t-butyl-4-hydroxyphenyl acetic acid with monohydric or polyhydric alcohols, amides of β -(3,5-di-t-butyl-4-hydroxyphenyl)propionic acid, ascorbic acid, and aminic antioxidants.

4. The mixture of additives in granular form according to claim 2, wherein the ultraviolet ray and light stabilizers are selected from the group consisting of derivatives of 2-(2'-hydroxyphenyl)benzotriazoles, derivatives of 2-hydroxybenzophenones, esters of benzoic acids optionally substituted, acrylates, nickel compounds, sterically hindered amines and their N-alkoxy derivatives, oxamides, and 2-(2-hydroxyphenyl)-1,3,5-triazine.

5. The mixture of additives in granular form according to claim 2, wherein other additives are present selected from the group consisting, of plasticizers, lubricants, emulsifying agents, rheological additives, catalysts, slip agents, optical brighteners, flame-retardants (bromurates, chlorurates, phosphorates and phosphorous/halogen mixtures), antistatic agents, and blowing agents.

6. The mixture of additives in granular form according to claim 1, wherein the organic pigments are selected from the group consisting of organic pigments of the azo type,

azomethines, anthraquinones, perilenes, dioxazines, thioindigo reds, quinacridones, phthalocyanines, blue indanthrones, carbazoles, isoindolinones, isoindolones, benzimidazolinones, and their metal salts.

7. (Cancelled)

8. The mixture of additives in granular form according to claim 1, wherein the dyes or bleaching agents, are soluble, insoluble or slightly soluble in water.

9. The mixture of additives in granular form according to claim 8, wherein the dyes which are soluble in water are selected from the group consisting of acid dyes, aminoketones, ketone-imines, methines, nitrodiphenylamines, quinolines, aminonaphthoquinones, coumarins, anthroquinones, and azo dyes .

10. The mixture of additives in granular form according to claim 9, wherein the dyes which are soluble in water contain one or more anionic groups soluble in water.

11. The mixture of additives in granular form according to claim 8, wherein the dyes are soluble in water are selected from the group consisting of salts, metal halides, anthraquinones, phthalocyanines, diarylmethane and triarylmethane; methine, polymethine and azomethine; thiazoles, ketone-imines, acridines, cyanines, nitro dyes, quinolines, benzimidazoles, xanthenes, azines, oxazines, thiazines and triazines which have at least one quaternary nitrogen in the molecule.

12. The mixture of additives in granular form according to claim 1, wherein the dyes which are insoluble or slightly soluble in water are selected from the group consisting of dyes containing sulfur, disperse dyes and vat dyes.
13. The mixture of additives in granular form according to claim 12, wherein the disperse dyes are selected from the group consisting of nitro dyes, aminoketones, ketone-imines, methines, polymethines, diphenylamines, quinolines, benzimidazoles, xanthene, oxazines, aminonaphthoquinones, and coumarins which do not contain carboxylic acid or sulfonic acid groups.
14. The mixtures of additives in granular form according to claim 12, wherein the vat dyes are those applied to fabrics in dispersed solid form and, after development, are still present in a form which is insoluble in water.
15. Use of the mixtures of additives according to any of the previous claims in the stabilization and dyeing of organic polymers.
16. Polymeric compositions containing an organic polymer and an effective quantity of one of the mixtures of additives according to any of the previous claims.
17. End-products obtained from the processing of the polymeric compositions according to claim 16.

18. The mixture of claim 10, wherein said anionic groups soluble in water are selected from the group consisting of carboxylic acid groups, sulfonic acid groups, and salts of said carboxylic and sulfonic acid groups.
19. The mixture of claim 18, wherein said salts are selected from the group consisting of lithium, sodium, potassium and ammonium salts.
20. The mixture of claim 11, wherein said salts which are dyes soluble in water are selected from the group consisting of chlorides, sulfates, metasulfates and -- onium chlorides, and said metal halides which are dyes soluble in water are tetrachlorozincates of azo dyes.
21. The mixture of claim 13, wherein said disperse dyes are selected from the group consisting of anthraquinones and azo dyes.

International Union of Pure and Applied Chemistry

Compendium of Chemical Terminology

IUPAC RECOMMENDATIONS

COMPILED BY

(The Late) VICTOR GOLD

Professor of Chemistry
King's College
London, UK

KURT L. LOENING

Director of Nomenclature
Chemical Abstracts Service
Columbus, Ohio, USA

ALAN D. McNAUGHT

Manager, Journals
The Royal Society of Chemistry
London, UK

PAMIL SEHMI

Journals Department
The Royal Society of Chemistry
London, UK

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CARBOCATION

The term was proposed as a replacement for the traditional usage of the name *carbonium ion*.

To avoid ambiguity, the name should not be used as the root for the systematic nomenclature of carbocations. The corresponding difficulty confused carbonium ion nomenclature for many years. For example, the term "ethyl carbonium ion" has at times been used to refer either (incorrectly) to CH_3CH_2^+ or (correctly according to older rules) to $\text{CH}_3\text{CH}_2\text{CH}_2^+$.

1983, 55, 1296

CARBOCATION

A cation containing an even number of electrons in which a significant portion of the excess positive charge is located on one or more carbon atoms. This is a general term embracing *carbenium ions*, all types of *carbonium ions*, *vinyl cations*, etc. Carbocations may be named by adding the word "cation" to the name of the corresponding *radical*. Such names do not imply structure (e.g., whether three-co-ordinated or five-co-ordinated carbon atoms are present).

See also *bridged carbocation*; *radical ion*.

1983, 55, 1296

CARBON-FURNACE

Atomizing device using heated carbon tubes.

O.B. 125

CARBONIUM ION

The term should for the present be avoided or at least used with great care since several incompatible usages are current. It is not acceptable as the root for the systematic nomenclature of *carbocations*.

1. In most of the existing literature the term is used in its traditional sense for what is here defined as *carbenium ion*.
2. A carbocation, real or hypothetical, that contains at least one five-co-ordinate carbon atom.
3. A carbocation, real or hypothetical, whose structure cannot adequately be described by two-electron two-centre *bonds* only. (The structure may involve carbon atoms with a co-ordination number greater than five.)

1983, 55, 1297

CARBYNE

Generic name for the species HC: and substitution derivatives thereof (such as $\text{EtO}_2\text{C-C:}$), containing an electrically neutral univalent carbon atom with three non-bonding electrons. Use of the alternative name *methylidyne* as a generic term is not recommended.

1983, 55, 1297

CARRIER

A substance in appreciable amount which, when associated with a

CARRIER FREE

trace of a specified substance, will carry the trace with it through a chemical or physical process.

See also *support (of a catalyst)*.

1982, 54, (1537); see also 1976, 46, 79

CARRIER FREE

A term describing a preparation of a *radioactive isotope* which is free from stable isotopes of the element in question.

1982, 54, (1537)

CARRIER GAS (or Eluent gas)

Gas used to *elute* the sample as it passes through the *column* in *gas chromatography*. The carrier gas together with the portions of the sample present in this phase constitutes the *mobile phase*.

O.B. 65 and 79

CARRIER, HOLD BACK

A *carrier* used to prevent a particular species from following other species in a chemical operation.

1982, 54, (1537)

CARRIER, ISOTOPIC

A *carrier* which differs only in isotopic composition from the trace it has to carry.

1982, 54, (1537)

CATALYSED REACTION

See *catalyst*.

1981, 53, (762)

CATALYSIS

The phenomenon in which a relatively small amount of a foreign material, called a *catalyst*, augments the rate of a *chemical reaction* without itself being consumed. Cases occur with certain reactants in which the addition of a substance reduces the rate of a particular reaction, for example, the addition of an *inhibitor* in a *chain reaction* or a *poison* in a *catalytic reaction*. The term "negative catalysis" has been used for these phenomena but this usage is not recommended; terms such as *inhibition* or *poisoning* are preferred.

1976, 48, 74; see also 1983, 55, 1297

CATALYSIS LAW

See *Brønsted relation*.

1983, 55, 1297

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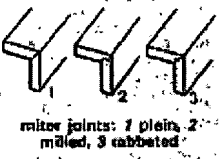
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car to use] 1: to use incorrectly: MISAPPLY (misused his talents)
 2: ABUSE, MISTREAT (misused his servants)
 mis-use \mish-'yūs, (mish-'yūs) n: incorrect or improper use
 MISAPPLICATION
 mis-value \('mis-'væl-)v, -v(ə-)v: UNDERVALUE
 mis-venture \('mis-'vɛn-ʃər) n: MISADVENTURE
 mis-write \('mis-'raɪ-)v, -wrot-, -written \-'rit-'n: -writ-
 ing \-'rit-ɪŋ): to write incorrectly
 mite \('mit-)n [ME, fr. OE mite: akin to MD *mitra* mite, small copper
 coin, OHG *meizna* to cut, OE *meað* silly — more at MAD] 1:
 any of numerous small to very minute arachnids (order Acarina)
 that often infest animals, plants, and stored foods and include
 important disease vectors 2 [ME, fr. MF or MD; MF, small
 Flemish copper coin, fr. MD]: a small coin or sum of money 3
 a: a very little: *ERT* (could be that I am a ~ prejudiced — John
 Fischer) b: a very small object or creature
 miter or miter \('mit-ər) n [ME
 mitre, fr. MF, fr. L *mitra* headband,
 turban, fr. Gk; akin to Skt *mitra*
 head] 1: a liturgical headpiece
 worn by bishops and abbots — see
 VESTMENT illustration 2 a: a sur-
 face forming the beveled end or edge
 of a piece where a joint is made by
 cutting two pieces at an angle and
 fitting them together b: MITER
 SQUARE
 miter or mitre w mitered or mitered: mitering or mitering
 \('mit-ər-ɪŋ) 1: to confer a miter on 2 a: to match or fit to-
 gether in a miter joint b: to bevel the ends of for making a miter
 joint — miterer \('mit-ər-ər) n
 miter box n: a device for guiding a hand saw at the proper angle in
 making a miter joint in wood
 miter gear n: one of a pair of interchangeable bevel gears with
 axes at right angles
 miter square n: a bevel with an immovable arm at an angle of 45
 degrees for striking miter lines; also: a square with an arm adjust-
 able to any angle
 mitterwort or mitterwort \('mit-ər-wɔrt, -wɔ(ə)rt) n: any of a
 genus (*Mitella*) of rhizomatous perennial herbs of the saxifrage
 family that bear a capsule resembling a bishop's miter
 mithraic \('mith-rē-ik) adj [LGk *mithraikos* of Mithras, ancient
 Far god of light, fr. Gk *Mithras*, fr. OP *Mithra*: of or relating to
 an oriental mystery cult for men flourishing in the late Roman
 empire — Mithraeum \('mith-rē-əm, -rē-əm) n — Mithraist
 \('mith-rē-ist) n or adj
 mithridate \('mith-rē-dāt) n [NL *mithridatum*, fr. LL *mi-
 thridatum*, fr. L *dogtooth* violet (used as an antidote), fr. Gk *mi-
 thridatōn*, fr. *Mithridates*: an antidote against poison; esp: an
 antidote held to be effective against poison
 mithridatize \('mith-rē-'dīt-ə-ɪz-)v n [Mithridates VI 163 B.C.
 king of Pontus, fr. L *Mithridates*, fr. Gk *Mithridatēs*, fr. the fact
 that he reputedly produced this condition in himself]: tolerance to
 a poison acquired by taking gradually increased doses of it
 miticide \('mit-ə-'sīd) n (mitic): an agent used to kill mites — mit-
 icidal \('mit-ə-'sīd-əl) adj
 mitigate \('mit-ə-'gāt) v -gated, -gating [ME *mitigen*, fr. L
mitigare, pp. of *mitigare* to soften, fr. *mitis* soft + *-igere* (akin to L
agere to drive); akin to OIr *mitib* soft — more at AGONY] 1: to
 cause to become less harsh or hostile: SOOZE (aggressiveness
 may be mitigated or ... channeled — Ashley Montagu) 2 a: to
 make less severe or painful: ALLEVIATE b: EXTENUATE syn SEE
 RELIEVE
 mitigately \('mit-ə-'gāt-ē-ly) adv — mitigative \('mit-ə-'gāt-iv) n — mit-
 igator \('mit-ə-'gāt-ər) n — mit-igatory \('mit-ə-'gāt-ər-ē-ly) adv
 mitochondrion \('mit-ə-'kōn-drē-ən) n, pl -dria \('drē-ə) [NL, fr.
 Gk *mitos* thread + *chondrion*, dim. of *chondros* grain — more at
 GROUND] 1: any of various round or long cellular organelles that are
 found outside the nucleus, produce energy for the cell through
 cellular respiration, and are rich in fats, proteins, and enzymes —
 see CELL illustration — (pl) to chondrion \('drē-ən) n
 mitogen \('mit-ə-'jən) n (mitosis + -gen): a substance that induces
 mitosis — mitogenic \('mit-ə-'jən-ik) adj — mitogenetic \('mit-ə-'jən-
 ə-'tɪk) n
 mitomycin \('mit-ə-'mɪ-sɪn) n [JVS *mito* (prob. fr. NL *mitosis*) +
 -mycin]: a complex of antibiotic substances which is produced by a
 Japanese streptomycete and one form of which acts directly on
 DNA and shows promise as an anticancer agent
 mitosis \('mit-ə-'sɪs) n, pl -sese \('sɛs) [NL, fr. Gk *mitos* thread]
 1: a process that takes place in the nucleus of a dividing cell: in-
 volves typically a series of steps consisting of prophase, metaphase,
 anaphase, and telophase, and results in the formation of two new
 nuclei each having the same number of chromosomes as the parent
 nucleus — compare MEIOSIS 2: cell division in which mitosis
 occurs — mitotically \('mit-ə-'tɪk-əl) adv — mitotically \('mit-ə-'tɪk-əl) adv
 mitral \('mit-rəl) n [ME *mitrale*, fr. MF *mitrale*, fr. OP, fr. *mitra*
 miter] 1: a covering for the hand and wrist having a separate
 section for the thumb only 2: MITT
 mitral valve \('mit-rəl-'væl) n [L *we* send, fr. *mittere* to send — more
 at MITT] 1: a warrant of commitment to prison
 mitzvah \('mits-və) n, pl mitzvot \('mits-vot), -vot, or mitzvahs
 [Heb *mitzvah*] 1: a commandment of the Jewish law 2: a mari-
 tious or charitable act
 mix \('miks) v [ME *mixen*, back-formation fr. *mixen* mixed, fr.
 MF, fr. L *mixtus*, pp. of *mixere* to mix; akin to Gk *mixnetai* to
 mix] w 1 a (1): to combine or blend into one mass (2): to



combine with another b: to bring into close association (~ busi-
 ness with pleasure) 2: to form by mixing components (~ a drink
 at the bar) 3: CONFUSE — often used with up (~ as things up in
 his eagerness to speak out — Irving Howe) ~ w 1 a: to become
 mixed b: to be capable of mixing 2: to enter into relations
 1: ASSOCIATE 3: CROSSBREED 4: to become involved: PARTICI-
 PATE (decided not to ~ in politics) — mixable \('mik-ə-bəl) adj
 syn MIX, MINGLE, COMINGLE, BLEND, MERGE, COALESCE, AMALGAM-
 ATE, FUSE shared meaning element: to combine or be combined
 into a more or less uniform whole
 mix n 1: an act or process of mixing 2: a product of mixing;
 specif: a commercially prepared mixture of food ingredients (a
 cake ~) 3: MIXER 2b
 mixed \('miks) adj [ME *mixte*] 1: combining characteristics of
 more than one kind; specif: combining features of two or more
 systems of government (a ~ constitution) 2: made up of or
 involving individuals or items of more than one kind as a: made
 up of or involving persons differing in race, national origin, reli-
 gion, or class b: made up of or involving individuals of both
 sexes (~ company) 3: including or accompanied by inconsistent
 or incompatible elements (~ emotions) 4: deriving from two or
 more races or breeds (a person of ~ blood)
 mixed alphabet n: an alphabet (as in a cryptographic system)
 that has been rearranged or disordered systematically or randomly
 mixed bag n: a miscellaneous collection: ASSORTMENT
 mixed bud n: a bud that produces a branch and leaves as well as
 flowers
 mixed drink n: an alcoholic beverage prepared from a recipe call-
 ing for two or more ingredients stirred or shaken before serving
 mixed farming n: the growing of food or cash crops, food crops,
 and livestock on the same farm
 mixed grill n: meats (as lamb chop, kidney, and bacon) and vege-
 tables broiled together and served on one plate
 mixed marriage n: a marriage between persons of different races
 or religions
 mixed-media adj: MULTIMEDIA
 mixed nerve n: a nerve containing both sensory and motor fibers
 mixed number n: a number (as 5½) composed of an integer and a
 fraction
 mixed-up \('miks-'ʌp) adj: marked by bewilderment, perplexity,
 or disorder: CONFOUSED (an abandonment of husband and child, and
 a totally ~ kid — Hollis Alpert)
 mixer \('miks-ər) n 1: one that mixes as a (1): one whose
 work is mixing the ingredients of a product (2): one who bal-
 ances and controls the dialogue, music, and sound effects to be
 recorded for or with a motion picture or television b: a com-
 bined, device, or machine for mixing c: a game, stunt, or dance
 used at a get-together to give members of the group an opportunity
 to meet one another in a friendly and informal atmosphere —
 called also forebreaker 2: one that mixes with others as a: a
 person considered as to his casual sociability (was shy and a poor
 ~) b: a nonalcoholic beverage (as ginger ale) used in a mixed
 drink
 mixology \('miks-ə-'lɔ-) n: the art or skill of preparing mixed
 drinks — mixologist \('miks-ə-'lɔ-ɪst) n
 mixt abbr mixture
 Mixtec \('mɪks-tek, -tek, -mɪks) n, pl Mixtecs or Mixtecs [AmerSp
 mixteco] 1: a member of an American Indian people of Mexico
 2: the language of the Mixtec people
 mixture \('miks-ʃər) n [MF, fr. OP *mixtura*, fr. L *mixtura*, fr. *mix-*
 \('miks) 1 a: the act, the process, or an instance of mixing b (1)
 the state of being mixed (2) the relative proportions of consti-
 tuents; specif: the proportion of fuel to air produced in a carburetor
 2: a product of mixing: COMBINATION; sq a: a portion of
 matter consisting of two or more components in varying propor-
 tions that retain their own properties b: a fabric woven of vari-
 ously colored threads c: a combination of several different kinds
 mix-up \('miks-'ʌp) n 1: a state or instance of confusion (a ~
 about who was to meet the train) 2: MURMUR 3: CONFLICT
 MIXER \('miks-ər) n [Ar *Mixar*, lit., veil, cloak]: a star of the second
 magnitude in the handle of the Big Dipper
 mixen or mizen \('miz-ən) n [ME *mizen*, prob. fr. MF *mizine*,
 deriv. of Ar *mazzin* mast] 1: a fore-and-aft sail set on the miz-
 zenmast 2: MIZZENMAST
 mizen or mizen \('miz-ən) n or adj: of or relating to the mizzenmast (~
 spruce)
 mizenmast \('miz-ən-'mæst, -mæst) n: the mast aft or next aft of the
 mizzenmast in a ship
 mixte \('miks-tek) n [ME *mixte*, mizte] w (1) *mixte* [ME *mixte*,
 akin to Flem *mixtelen* to drizzle, MD *mix* to help in
 very fine drops; puzzle (standing up butters in the patting rain
 — Helen Burley) — mixte n — mixte \('miks-tek) n
 mizzle w mizzled, mizzling \('miz-əl) (origin unknown) chiefly
 Brit: to depart suddenly
 mk abbr mark 2 marks
 MK abbr Mark
 mks abbr meter-kilogram-second
 mktg abbr marketing
 ml abbr milliliter
 ml abbr millihertz
 MLA abbr Member of the Legislative Assembly 2 Modern
 Language Association
 MLD abbr 1 median lethal dose 2 minimum lethal dose
 MLP abbr multilateral force
 Mills abbr [P] mademoiselle

a about * kitten or further a back 5 back 6 oct. cart
 ab out ch chin e less 8 only 9 gift 1 trip 1 life
 j joke 9 sing 5 flow 6 flaw 10 coin 11 thin 12 this
 13 foot 14 foot 15 yet 16 few 17 furious 18 vision

hemisphere and on December 22d to begin winter in the northern hemisphere

sol-sti-tial \sɒl-'stī-əl, sɒl-, sɒl-/ *adj* [L. solstitium, fr. solstitium] 1 : of, relating to, or characteristic of a solstice and esp. the summer solstice 2 : happening or appearing at or associated with a solstice

sol-u-bil-i-ty \sɒl-'yɒ-bəl-ə-ti/ *n* 1 : the quality or state of being soluble 2 : the amount of a substance that will dissolve in a given amount of another substance

sol-u-bil-ize \sɒl-'yɒ-bə-'līz/ *v* *tr* *intrans* *trans* : to make soluble or increase the solubility of — **sol-u-bil-i-za-tion** \sɒl-'yɒ-bə-'lī-zā-shən/ *n*

sol-u-ble \sɒl-'yɒ-bəl/ *adj* [ME. fr. MF. capable of being loosened or dissolved, fr. LL solubilis, fr. L solvere to loosen, dissolve — more at SOLVE] 1 : susceptible of being dissolved in or as if in a fluid 2 : capable of being explained : EXPLAINEABLE (a ~ case) 3 : subject to being solved or explained (~ questions) — **sol-u-bil-i-ty** *n* — **sol-u-bly** \-bəl/ *adv*

soluble glass *n* : WATER GLASS 4

soluble RNA *n* : TRANSFER RNA

sol-um \sɒ-'lʌm/ *n* *pl* sol-a \-lə/ or sol-ums [NL. fr. L, ground, soil] : the altered layer of soil above the parent material that includes the A- and B-horizons

sol-us \sɒ-'lʌs/ *adv* or *adj* [L] : ALONE — often used in stage directions

sol-u-tion \sɒl-'yʊ-ti-ən/ *n* [L solutus, pp.] : a dissolved substance

sol-u-tion \sɒ-'lʊ-shən/ *n* [ME. fr. MF. fr. L solutio, solutio, fr. solutus, pp. of solvere to loosen, solve] 1 : an action or process of solving a problem 2 : an answer to a problem : EXPLANATION

sol-u-tion \sɒ-'lʊ-ti-ən/ *n* : a set of values of the variables that satisfies an equation 2 : an act or the process by which a solid, liquid, or gaseous substance is homogeneously mixed with a liquid or sometimes a gas or solid 3 : a typically liquid homogeneous mixture formed by this process 4 : the condition of being dissolved 5 : a liquid containing a dissolved substance 6 : a bringing or coming to an end or into a state of discontinuity

sol-u-tion set *n* : the set of values that satisfy an equation; also : TRUTH SET

Sol-u-tion or Sol-u-tion \sɒ-'lʊ-ti-ən/ *adj* [Solur, village in France] : of or relating to an upper Paleolithic culture characterized by leaf-shaped finely flaked stone implements

sol-u-tion \sɒ-'lʊ-ti-ən/ *adj* : susceptible of solution or of being solved, resolved, or explained — **sol-u-tion-able** \sɒl-'yɒ-bəl-ə-bəl/ *adj*

sol-u-tion \sɒ-'lʊ-ti-ən/ *n* : a complex ion formed by the chemical or physical combination of a solute ion or molecule with a solvent molecule; also : a substance (as a hydrate) containing such ions

sol-u-tion \sɒ-'lʊ-ti-ən/ *n* : to convert into a solute ~ *n* : to become or behave as a solute — **sol-u-tion-ize** \sɒl-'yɒ-bə-'līz/ *v*

Solve \sɒlv/ *v* [Ernest Solvey 1922 Belg chemist] : a process for making soda from common salt by passing carbon dioxide into ammoniacal brine resulting in precipitation of sodium bicarbonate which is then calcined to carbonate

sol-u-tion \sɒ-'lʊ-ti-ən/ *n* : to solve; solving [ME solvere to loosen, fr. L solvere to loosen, solve, dissolve, fr. sol-, se- apart-, have to release — more at SOLVE, LOSS] 1 : to find a solution for (~ a problem) 2 : to pay (as a debt) in full ~ *n* : to solve something (substitute the known values of the constants and ~ for x) — **sol-u-tion-er** *n*

sol-u-tion \sɒ-'lʊ-ti-ən/ *n* : the quality or state of being solvent

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passion esp. through measurement and observation — **so-ma-to-log-i-cal** \sɒ-mə-'tɒ-lə-'dʒ-əl/ *adj*

so-ma-to-plasm \sɒ-mə-'tɒ-pləz-əm/ *n* 1 : protoplasm of somatic cells 2 : somatic cells as distinguished from germ cells — **so-ma-to-plas-tic** \sɒ-mə-'tɒ-pləz-ik/ *adj*

so-ma-to-plasm \sɒ-mə-'tɒ-pləz-əm/ *n* [NL somatoplasma, fr. somat- + Gk plasma side] : a complex layer in the embryo of a cranial vertebrate consisting of the outer of the two layers into which the lateral plate of the mesoderm splits together with the ectoderm that sheathes it externally and giving rise to the body wall — **so-ma-to-plas-tic** \sɒ-mə-'tɒ-pləz-ik/ *adj*

so-ma-to-sen-sory \sɒ-mə-'tɒ-sen-(s)-ə-'rɪ/ *adj* : of, relating to, or being sensory activity having its origin elsewhere than in the special sense organs (as eyes and ears) and conveying information about the state of the body proper and its immediate environment

so-ma-to-tro-phic \sɒ-mə-'tɒ-fɪk/ *adj* : of, relating to, or being trophic hormones — **so-ma-to-tro-phic** \sɒ-mə-'tɒ-fɪk/ *n* [somat- + -trophic] : GROWTH HORMONE 1

so-ma-to-tro-pin \sɒ-mə-'tɒ-pɪn/ or **so-ma-to-trophin** \sɒ-mə-'tɒ-fɪn/ *n* [somatotropic somatotrophic + -in] : GROWTH HORMONE 1

so-ma-to-type \sɒ-mə-'tɒ-tɪp/ *n* : body type : PHYSIQUE — **so-ma-to-typ-ic** \sɒ-mə-'tɒ-tɪk/ *adj* — **so-ma-to-typ-i-cal-ly** \-tɪk-əl-ē/ *adv*

som-ber or **som-ber** \sɒm-'bɜː/ *adj* [F sombre] 1 : so shaded as to be dark and gloomy 2 : of a serious mood : GRAVE 3 : of a dismal or depressing character : MELANCHOLY 4 : conveying gloomy suggestions or ideas 5 : of a dull or heavy cast or shade 6 : dark colored — **som-ber-ly** *adv* — **som-ber-ness** *n*

som-ber-er \sɒm-'bɜː-ə/ *adj* [F sombre] 1 : a high-crowned hat of felt or straw with a very wide brim worn esp. in the Southwest and Mexico

som-ber-ous \sɒm-'bɜː-əs/ *adj* [F sombre] : SOM-ber

som-ber \sɒm-'bɜː/ *adj* [ME som, fr. OE sum; akin to OHG sum] : a serious mood, grave

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sombrero

s about	• kitten	or further	a back	• basic	• out, care
s out	ch chin	e less	o easy	g gift	i trip
j joke	g sing	o flow	o raw	o color	o chin
l lost	z foot	y yet	yū few	yā furious	zh vision